

AMENDMENTS TO THE CLAIMS

Claims 1-12 (Cancelled)

Claim 13 (Withdrawn) A production process for a polyorthoester characterized by subjecting the orthoester (a), the glycol compound (b) and the hydroxyl group -containing compound (c) each described in claim 1 to condensation reaction in the presence of an acid catalyst.

Claim 14 (Withdrawn) The process as described in claim 13, wherein the orthoester (a) in a proportion falling in a range of 0.05 to 5 moles is reacted with the glycol compound (b) in a proportion falling in a range of 0.05 to 5 moles each per equivalent of a hydroxyl group contained in the hydroxyl group -containing compound (c).

Claim 15 (Withdrawn) A curable composition comprising:
(A) the polyorthoester as described in claim 1, and
(B) a curing agent having a group having a reactivity with a hydroxyl group.

Claim 16 (Withdrawn) The curable composition as described in claim 15, wherein the curing agent (B) is at least one compound or resin selected from the group consisting of polyisocyanate compounds, amino resins, epoxy group -containing compounds, alkoxysilyl group -containing compounds and compounds having two or more carboxylic anhydride groups.

Claim 17 (Withdrawn) The curable composition as described in claim 15, wherein the curing agent (B) is at least one compound or resin selected from the group consisting of polyisocyanate compounds and amino resins.

Claim 18 (Withdrawn) The curable composition as described in claim 15, comprising the polyorthoester (A) and the curing agent (B) in a range of 95/5 to 20/80 in terms of a solid matter weight ratio of (A)/(B).

Claim 19 (Withdrawn) The curable composition as described in claim 15, further comprising an acid catalyst.

Claim 20 (Withdrawn) The curable composition as described in claim 19, wherein the acid catalyst is at least one compound selected from the group consisting of sulfonic acid compounds, neutralized compounds of the sulfonic acid compounds, organic phosphoric acid base compounds and neutralized compounds of the organic phosphoric acid base compounds.

Claim 21 (Withdrawn) The curable composition as described in claim 15, assuming the form of a coating material composition, an adhesive or an ink.

Claim 22 (Withdrawn) A curable composition comprising:
(1) a base polymer having a reactivity with the following curing agent (2),
(2) a curing agent which has a group having a reactivity with a hydroxyl group and which has a reactivity with the base polymer (1), and (3) the polyorthoester as described in claim 1.

Claim 23 (Withdrawn) The curable composition as described in claim 22, wherein the base polymer (1) is a hydroxyl group-containing polymer having a hydroxyl group value falling in a range of 20 to 300 mg KOH/g and a number average molecular weight falling in a range of 1,000 to 30,000.

Claim 24 (Withdrawn) The curable composition as described in claim 22, wherein the base polymer (1) is at least one polymer selected from the group consisting of hydroxyl group -containing acrylic resins and hydroxyl group -containing polyester resins.

Claim 25 (Withdrawn) The curable composition as described in claim 22, wherein the curing agent (2) is at least one compound selected from the group consisting of polyisocyanate compounds, amino resins, epoxy group-containing compounds, alkoxysilyl group-containing compounds and compounds having two or more carboxylic anhydride groups.

Claim 26 (Withdrawn) The curable composition as described in claim 22, wherein the curing agent (2) is at least one compound or resin selected from the group consisting of polyisocyanate compounds and amino resins.

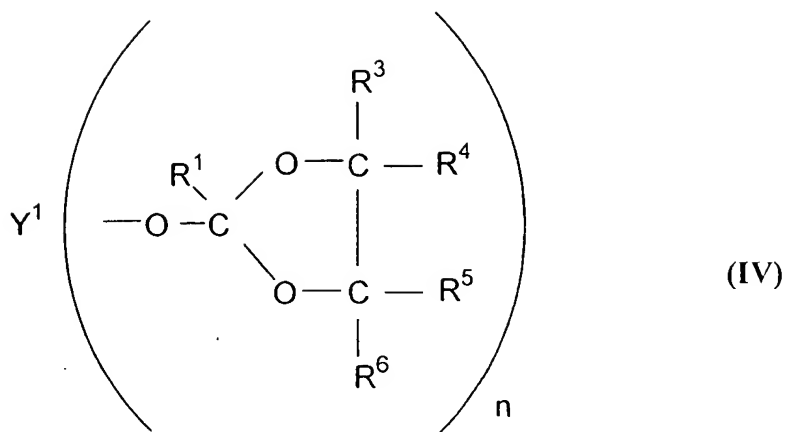
Claim 27 (Withdrawn) The curable composition as described in claim 22, comprising the base polymer (1), the curing agent (2) and the polyorthoester (3) in a range of 20 to 89 parts by weight of the component (1), 5 to 70 parts by weight of the component (2) and 1 to 40 parts by weight of the component (3) based on 100 parts by weight of the total of solid matters contained in the respective components (1), (2) and (3).

Claim 28 (Withdrawn) The curable composition as described in claim 22, further comprising an acid catalyst.

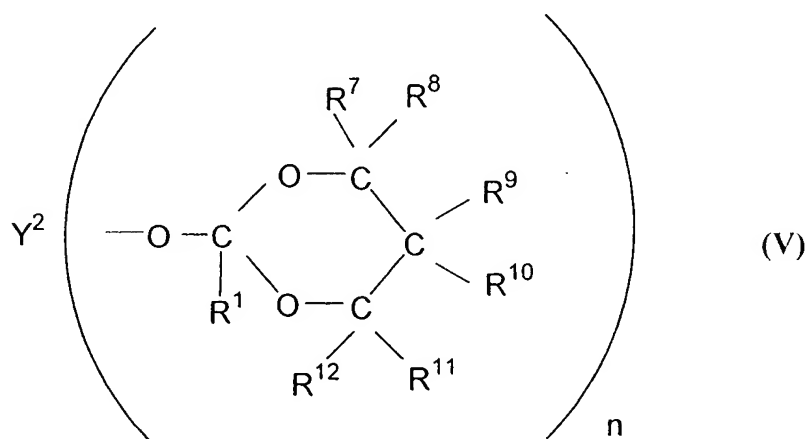
Claim 29 (Withdrawn) The curable composition as described in claim 28, wherein the acid catalyst is at least one compound selected from the group consisting of sulfonic acid compounds, neutralized compounds of the sulfonic acid compounds, organic phosphoric acid base compounds and neutralized compounds of the organic phosphoric acid base compounds.

Claim 30 (Withdrawn) The curable composition as described in claim 22, assuming the form of a coating material composition, an adhesive or an ink.

Claim 31 (New) The polyorthoester having a structure represented by the following Formula (IV):



wherein Y^1 represents a residue obtained by removing 3 to 40 hydroxyl groups from a compound having 3 to 40 hydroxyl groups in a molecule; R^1 represents a hydrogen atom or an alkyl group having 1 to 4 carbon atoms; R^3 , R^4 , R^5 and R^6 may be the same or different and each represents a hydrogen atom, an alkyl group having 1 to 24 carbon atoms, an aralkyl group having 7 to 24 carbon atoms or a phenyl group, or a group obtained by substituting a part of these groups with an oxygen atom, the total of the carbon atoms in the groups represented by R^3 , R^4 , R^5 and R^6 falling in a range of 0 to 24; or R^4 and R^5 may form a cyclic structure together with carbon atoms to which they are bonded directly; and n represents an integer of 3 to 40, or by the following Formula (V):



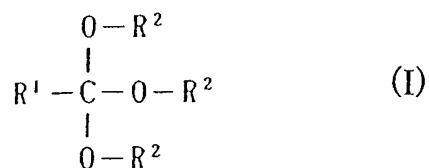
wherein Y^2 represents a residue obtained by removing 3 to 40 hydroxyl groups from a compound having 3 to 40 hydroxyl groups in a molecule; R^1 represents a hydrogen atom or an alkyl group having 1 to 4 carbon atoms; R^7 , R^8 , R^9 , R^{10} , R^{11} and R^{12} may be the same or different and each represents a hydrogen atom, an alkyl group having 1 to 24 carbon atoms, an aralkyl group having 7 to 24 carbon atoms or a phenyl group, or a group obtained by substituting a part

of these groups with an oxygen atom, the total of the carbon atoms in the groups represented by R^7 , R^8 , R^9 , R^{10} , R^{11} and R^{12} falling in a range of 0 to 24; or R^7 and R^9 or R^7 , R^9 and R^{11} may form a cyclic structure together with carbon atoms to which they are bonded directly; and n represents an integer of 3 to 40.

Claim 32 (New) The polyorthoester as set forth in claim 31 wherein Y' represents a tri- to hexavalent residue obtained by removing 3 to 6 hydroxyl groups from a compound having 3 to 6 hydroxyl groups in a molecule.

Claim 33 (New) The polyorthoester as set forth in claim 31 wherein Y^2 represents a tri- to hexavalent residue obtained by removing 3 to 6 hydroxyl groups from a compound having 3 to 6 hydroxyl groups in a molecule.

Claim 34 (New) The polyorthoester as described in claim 31 prepared by reacting:
(a) an orthoester represented by the following Formula (I):



wherein R^1 represents a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, and three R^2 's may be the same or different and each represent an alkyl group having 1 to 4 carbon atoms,

(b) at least one glycol compound selected from α -glycols and β -glycols, and

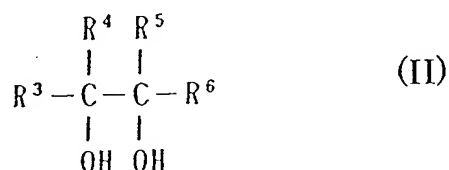
(c) a hydroxyl group-containing compound having at least 3 to 40 hydroxyl groups in a molecule other than the compound (b) described above.

Claim 35 (New) The polyorthoester as described in claim 34, wherein the orthoester (a) is at least one compound selected from the group consisting of methyl orthoformate, ethyl

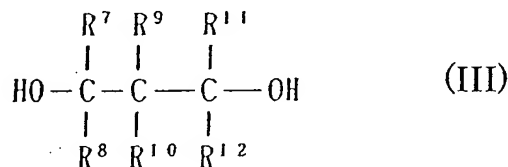
orthoformate, propyl orthoformate, butyl orthoformate, methyl orthoacetate, ethyl orthoacetate, methyl orthopropionate, ethyl orthopropionate, methyl orthobutyrate and ethyl orthobutyrate.

Claim 36 (New) The polyorthoester as described in claim 34, wherein the orthoester (a) is at least one compound selected from the group consisting of methyl orthoformate, ethyl orthoformate, methyl orthoacetate and ethyl orthoacetate.

Claim 37 (New) The polyorthoester as described in claim 34, wherein the glycol compound (b) is at least one glycol compound selected from the group consisting of an α -glycol represented by the following Formula (II)



wherein R^3 , R^4 , R^5 and R^6 may be the same or different and each represent a hydrogen atom, an alkyl group having 1 to 24 carbon atoms, an aralkyl group having 7 to 24 carbon atoms or a phenyl group, or a group obtained by substituting a part of these groups with an oxygen atom, and the total of the carbon atoms in the groups represented by R^3 , R^4 , R^5 and R^6 falls in a range of 0 to 24; and R^4 and R^5 may form a cyclic structure together with carbon atoms to which they are bonded directly and a β -glycol represented by the following Formula (III):



wherein R^7 , R^8 , R^9 , R^{10} , R^{11} and R^{12} may be the same or different and each represent a hydrogen atom, an alkyl group having 1 to 24 carbon atoms, an aralkyl group having 7 to 24 carbon atoms or a phenyl group, or a group obtained by substituting a part of these groups with

an oxygen atom, and the total of the carbon atoms in the groups represented by R^7 , R^8 , R^9 , R^{10} , R^{11} and R^{12} falls in a range of 0 to 24; and R^7 and R^9 or R^7 , R^9 and R^{11} may form a cyclic structure together with carbon atoms to which they are bonded directly.

Claim 38 (New) The polyorthoester as described in claim 37, wherein the α -glycol is selected from the group consisting of ethylene glycol, 1,2-propylene glycol, 1,2-butylene glycol, 2,3-butylene glycol, 1,2-hexanediol, 1,2-dihydroxycyclohexane, pinacol, hydrolysis products of long chain alkyl monoepoxides, glycerin monoacetate (α product), glycerin monostearate (α product), 3-ethoxypropane-1,2-diol and 3-phenoxypropane-1,2-diol.

Claim 39 (New) The polyorthoester as described in claim 37, wherein the β -glycol is selected from the group consisting of neopentyl glycol, 2-methyl-1, 3-propanediol, 2-methyl-2,4-pentanediol, 3-methyl-1,3-butanediol, 2-ethyl-1,3-hexanediol, 2,2-diethyl-1,3-propanediol, 2,2,4-trimethyl-1,3-pentanediol, 2-butyl-2-ethyl-1,3-propanediol, 2-phenoxypropane-1,3-diol, 2-methyl-2-phenylpropane-1,3-diol, 1,3-propylene glycol, 1,3-butylene glycol, dimethylolpropionic acid, dimethylolbutanoic acid, 2-ethyl-1,3-octanediol, 1,3-dihydroxycyclohexane, glycerin monoacetate (β product) and glycerin monostearate (β product).

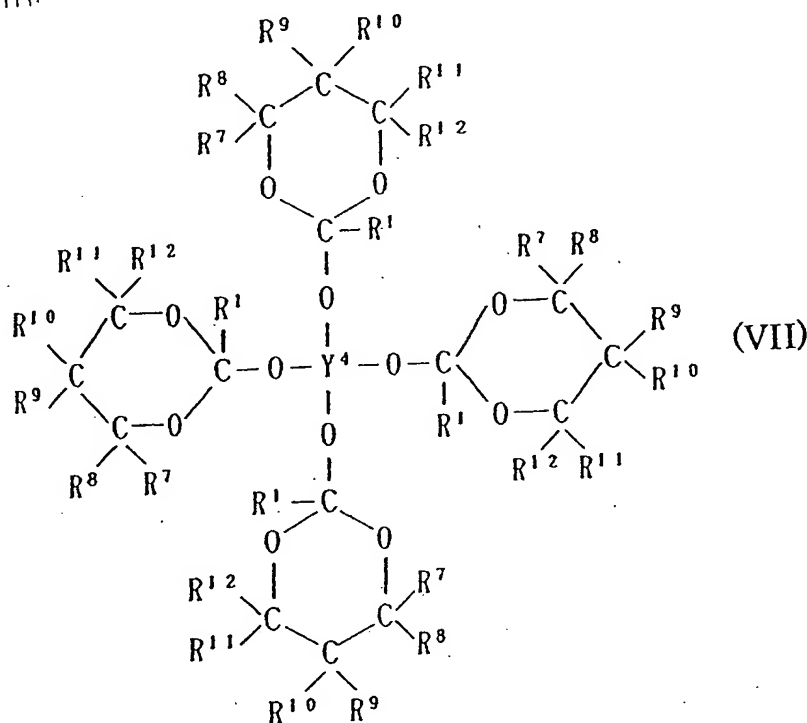
Claim 40 (New) The polyorthoester as described in claim 34, wherein the glycol compound (b) is at least one compound selected from the group consisting of ethylene glycol, 1,2-propylene glycol, 1,2-hexanediol, neopentyl glycol, 2-methyl-1,3-propanediol, 2-methyl-2,4-pentanediol, 3-methyl-1,3-butanediol, 2-ethyl-1, 3-hexanediol, 2,2-diethyl-1,3-propanediol, 2,2,4- trimethyl-1, 3-pentanediol and 2-butyl-2-ethyl-1,3-propanediol.

Claim 41 (New) The polyorthoester as described in claim 34, wherein the hydroxyl group-containing compound (c) is at least one compound selected from the group consisting of glycerin, diglycerin, triglycerin, pentaerythritol, dipentaerythritol, sorbitol, mannitol, trimethylolethane, trimethylolpropane, ditrimethylolpropane, tris(2-hydroxyethyl)isocyanurate, gluconic acid, polymers having 3 to 40 hydroxyl groups which are polyesters, polyethers, acryl

polymers, ketone resins, phenol resins, epoxy resins, urethane resins, polyvinyl alcohols which are saponified products of polyvinyl acetates and natural saccharides.

Claim 42 (New) The polyorthoester as described in claim 34, wherein the hydroxyl group-containing compound (c) has a molecular weight falling in a range of 90 to 100,000 and a hydroxyl group value falling in a range of 20 to 1,850 mg KOH/g.

Claim 43 (New) A polyorthoester having a structure represented by the following Formula (VII).



wherein Y^4 represents a residue obtained by removing four hydroxyl groups from a compound having four hydroxyl groups in a molecule; R^1 , R^7 , R^8 , R^9 , R^{10} , R^{11} and R^{12} are the same as defined in claim 31.